

The Knowledge Bank at The Ohio State University

Ohio State Engineer

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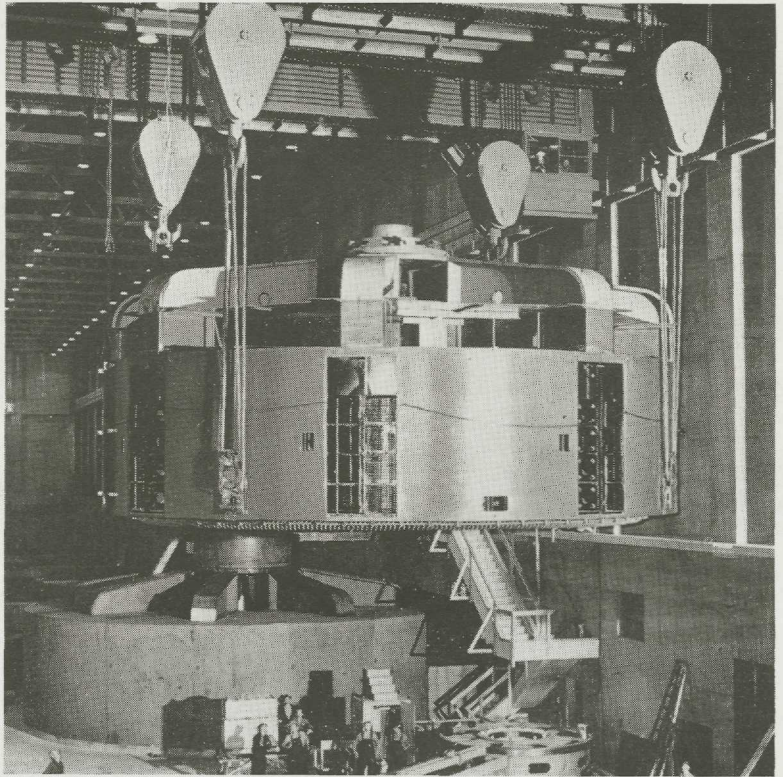
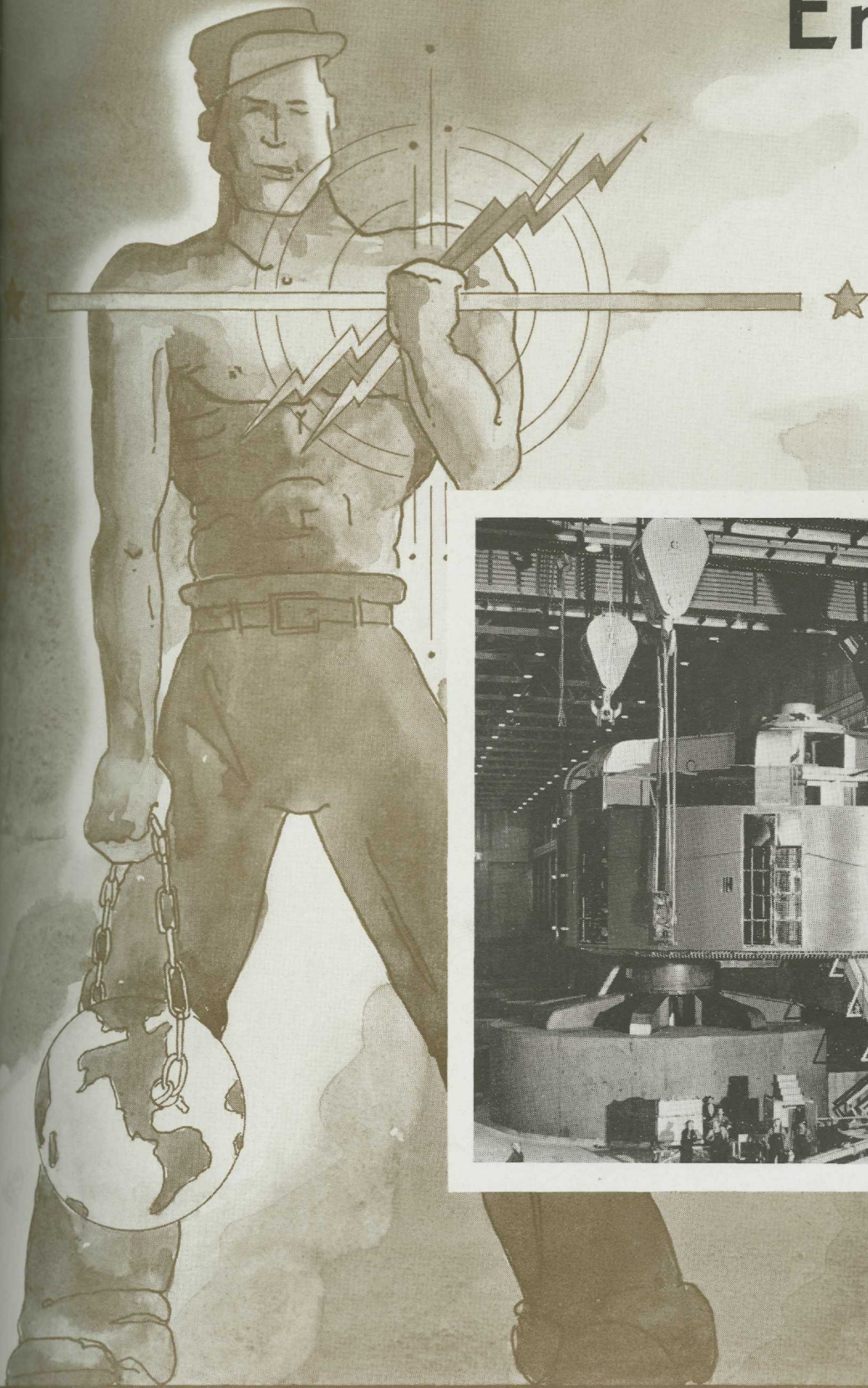
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The Ohio State

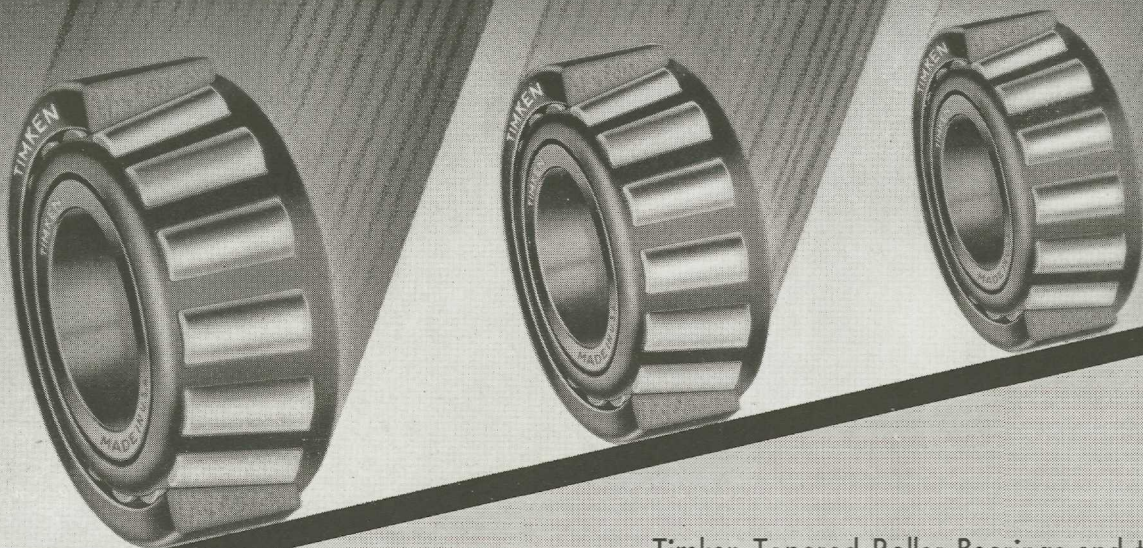
Engineer



November

1942

Prepare for post-war reconstruction—
learn to “know your bearings” now



A heavy part of the burden of world reconstruction following the United Nations' victory in the war will have to be borne by graduate engineers, now in school.

Revolutionary advancements in machines of all kinds will be the order of the day and, among other things, you'll have to know your bearings in order to be able to hold your own when competition gets tough.

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L. A. Kilgore has been designing electric generators, rectifiers, and motors ever since he joined Westinghouse ... but his 40,000 h.p. Wright Field wind-tunnel motor tops them all. Kilgore received his E. E. at the University of Nebraska and his M.S. at the University of Pittsburgh.

The hurricane that shapes an eagle's wings.

THE LIGHTNING SPEED of the modern warplane has brought a lot of headaches to aircraft designers.

Wind-tunnels, the "proving grounds" of aviation, were satisfactory for studying the performance of the lighter, slower planes of yesterday. But they were not adequate for today's fighter planes ... with top speeds of *over 400 miles per hour*.

To investigate the terrific forces at work at these high speeds, the U. S. Army demanded a wind-tunnel that would produce a tornado many times greater than Nature's wildest gale.

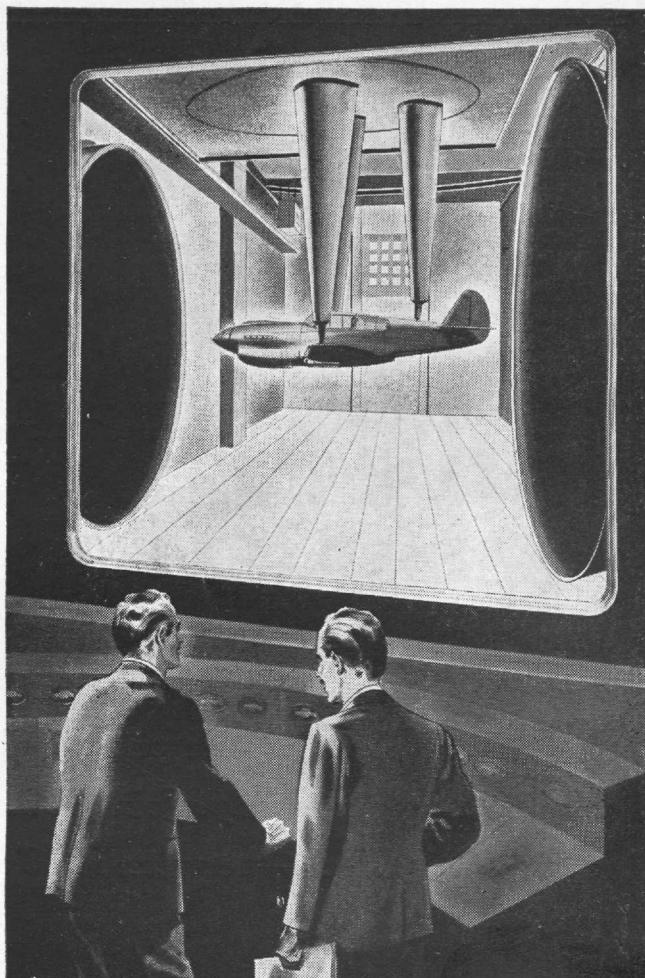
Army officials asked Westinghouse to take over the job of *building the electric motor* to drive the fans in this tunnel.

The two fans were to be truly colossal ... 40 feet across, with a combined weight of nearly 150 tons. They were to be mounted on a 16-inch solid steel shaft, 120 feet long. Merely starting this great mass in motion, with minimum disturbance to the power system, was the toughest kind of engineering problem.

To complicate the problem further, a wide range of air speeds is required for wind-tunnel testing. And at each air speed the motor speed must be held constant, regardless of fluctuations in the electric power lines.

L. A. Kilgore ... in collaboration with J. C. Fink ... tackled the problem. In twelve months these Westinghouse engineers designed and supervised the construction and installation of a 40,000 hp wound-rotor induction motor ... world's largest of its kind ... an installation that met every Army requirement.

That 40,000 horse power motor ... a direct result of West-



inghouse "know how" ... is now in service in the new \$2,500,000 wind-tunnel at Wright Field. Large airplane models and actual-size motors, with whirling propellers, are tested and studied in its 400-mile-an-hour windstream.

• • •

Kilgore and Fink have given vital aid to winning the war ... for they have helped to make it possible for Army experts to learn many new facts about plane performance and plane design, facts of utmost importance in gaining and maintaining air supremacy over the Axis.

Today the need for engineers is very great. Of the 300 young engineering graduates who joined Westinghouse last spring, many are already showing great promise in engineering.

Westinghouse looks to the Class of '43 for its future scientists and engineers.

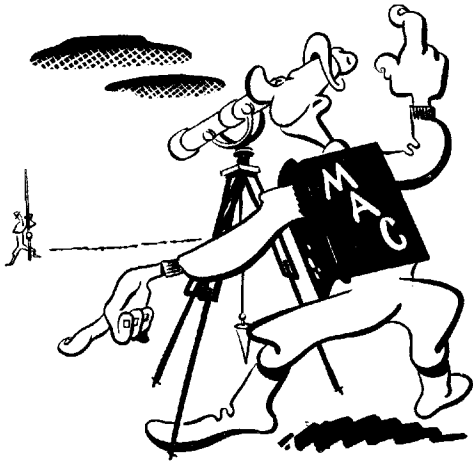
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1943
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IF IT HAPPENS AT OHIO STATE, IT'S IN THE MAKIO!

The OHIO STATE ENGINEER

Vol. XXVI

November, 1942

No. 1

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OUR COVER

The inset photo shows a 100 ton water wheel generator being installed at Grand Coulee Dam, Washington. This generator has a capacity of 108,00 K.W..

Cut Courtesy of Westinghouse

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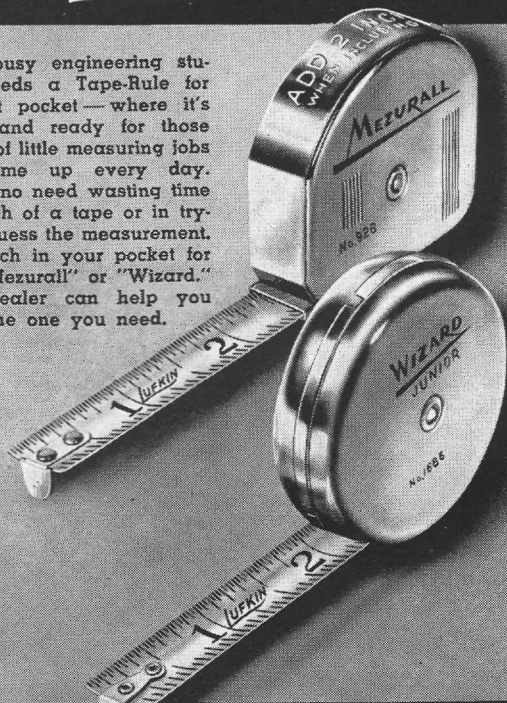
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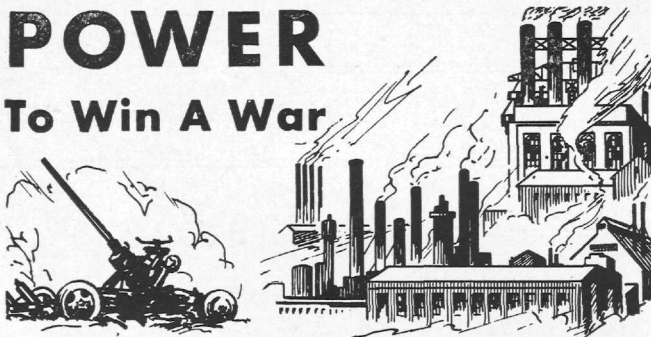
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To all engineers in the jungles of Brazil, Australia, Alaska, Canada, or "somewhere":

PHILOSOPHY CODE

O, I'm Mother Nature's Gypsy Child
And this twining river makes me wild,
There are no codes or robes for me . . .
But Sun and Wind and Rain and Sea,
To my castle of dreams they have fashioned a key
And mystic the spell they've woven for me
One turn to the right is my DESTINY
So take it my friend, and I'll follow thee.

Irene S. McKinley.

Submitted by

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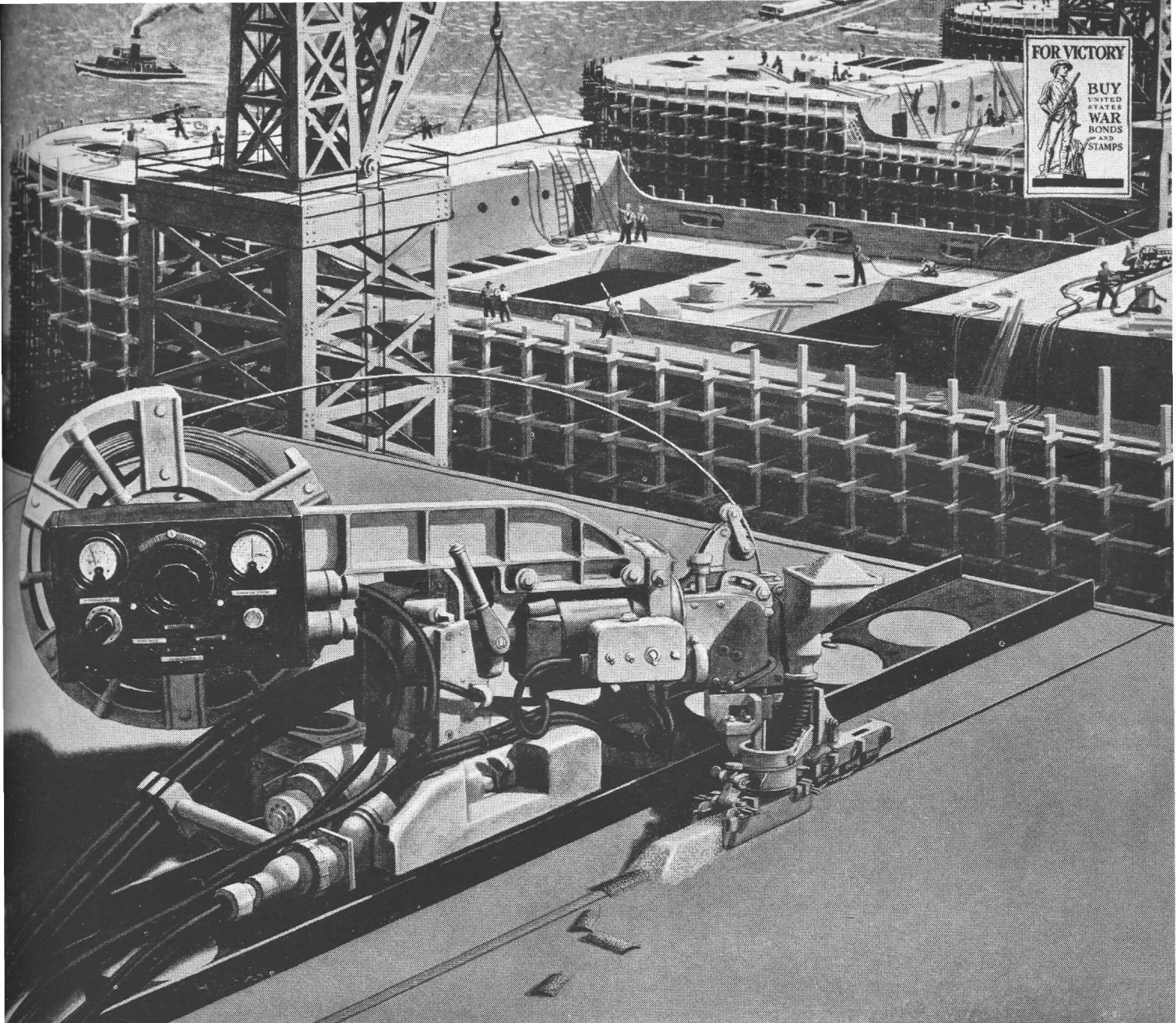
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"Unionmelt" welding is also speeding up the construction of fighting tanks and chemical tanks . . . artillery mounts and aircraft parts . . . pressure vessels and locomotive boilers . . . pipe

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Engineers At War